

CLAIMS

1. Disposable syringe with retractile needle, comprising a reservoir, having a rear end open for the slidable insertion of a piston element, provided with gasket on the end faced toward the inside of said reservoir, and a front end, open as well, provided with lip for the coupling of a needle, and a protection cap for the needle when it is not used, said syringe being characterised in that it is provided a needle carrier socket element, coupable with said lip of the reservoir from inside the same reservoir, in that a seat is realised on said lip for seating a sealing gasket between needle carrier socket and reservoir lip, in that it is provided a double hook element, causing, after the piston stroke toward the end of said socket element of the needle, to allow its retraction within the reservoir during the reverse stroke of the piston, and in that an elastic element or spring is provided between said double hook element and the end of said reservoir lip, that, when compressed, maintains said double hook element in its position, and when extended, acts to cause the return of the needle within the reservoir.
2. Disposable syringe with retractile needle according to claim 1, characterised in that a seat for housing of a sealing gasket is realised between needle carrier socket element and reservoir lip.
3. Disposable syringe with retractile needle according to claim 1 or 2, characterised in that an irreversibility point is indicated on said reservoir, indicating the irreversibility of the piston action.
4. Disposable syringe with retractile needle according to one of the preceding claims, characterised in that said socket element for the needle provides a hinge for spherical coupling of the double hook element, a start for the translation of the socket element from the seat, a seat for the fixed joint of a lug of the double hook element, a stop for said double hook element, a seat for said elastic element or spring
5. Disposable syringe with retractile needle according to claim 4, characterised in that said means for the coupling of the double hook element are comprised of a spherical coupling hinge of the double hook element.

6. Disposable syringe with retractile needle according to claim 4 or 5, characterised in that said needle carrier socket provides a seat for said sealing gasket between socket and syringe body.

5 7. Disposable syringe with retractile needle according to one of the preceding claims, characterised in that said double hook element provides a hollow central element, provided with large longitudinal cuts on its upper part, lateral lugs, coupled with said central hollow element, and symmetrically provided with respect to the same, coupling with a "knee" seat realised on said socket element, and its
10 end provided according to a reduced angle hinge, allowing only a partial rotation about its axis, and, at the bottom, with lugs, said lugs being provided with an irreversible hooking with said needle carrier socket.

15 8. Disposable syringe with retractile needle according to claim 7, characterised in that said hollow central element has a substantially cylindrical shape.

19 9. Disposable syringe with retractile needle according to claim 7 or 8, characterised in that said hollow central body is provided above with large longitudinal cuts.

20 10. Disposable syringe with retractile needle according to claim 7, 8 or 9, characterised in that said seat has a "knee" shape.

25 11. Disposable syringe with retractile needle according to claim 7, 8, 9 or 10, characterised in that said ends are provided according to a reduced angle hinge configuration.

29 12. Disposable syringe with retractile needle according to one of the preceding claims, characterised in that deformable materials are employed.

30 13. Disposable syringe with retractile needle according to one of the preceding claims, characterised in that a plurality of lateral lugs on the double hook element is provided.

35 14. Disposable syringe with retractile needle according to one of the preceding claims, characterised in that a plurality of elastic elements or springs, placed in series, is provided.

36 15. Disposable syringe with retractile needle according to one of the preceding claims, characterised in that said piston has each necessary shape.

16. Disposable syringe with retractile needle according to one of the preceding claims, characterised in that said double hook element is coupled with the needle carrier socket by welding or fixed joint.

5 17. Disposable syringe with retractile needle according to one of the preceding claims, characterised in that said needle carrier socket element remains blocked, with respect to the downward vertical movements, by a force coupling with said sealing gasket, and by the suitable seat realised in said lip syringe, with respect to the upward vertical movements by said lugs of the double hook element, engaging on the syringe body in a suitable seat, with respect to the transverse movements, by the coupling with minimum tolerances between socket element and syringe body, and with respect to the rotation movements about the syringe axis by friction.

10 18. Disposable syringe with retractile needle according to one of the preceding claims, characterised in that said elastic element or spring and said sealing gasket are compressed during the injection phase, contributing to maintain said double hook element in position, pushing it upward against the syringe body.

15 19. Disposable syringe with retractile needle according to one of the preceding claims, characterised in that said piston, passing said irreversibility point, arms the hooking device of the double hook element, causing the buckling by rotation of the lateral lugs, thus releasing said "knee" element from the restraint with the syringe body, and said double hook element, sliding downward, by lugs provided with fixed joints, hooks on the needle carrier socket element, thus realising a sole assembly wit the same socket element, needle – needle carrier socket element – double hook element assembly sliding backward by the action of the elastic element or spring, dragging, in its extension stroke said needle within the reservoir, released by the pushing action on the piston.

20 20. Disposable syringe with retractile needle according to one of the preceding claims, substantially as illustrated and described.